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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/685,307	10/10/2000	Mark J. Kittock	2028-174	4343

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PATENT LEGAL DEPARTMENT/A-42-C
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EXAMINER	
PICKARD, ALISON K	
ART UNIT	**PAPER NUMBER**
3676	

DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/685,307	Applicant(s) KITTOCK ET AL.	
	Examin r Alison K. Pickard	Art Unit 3676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-11 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-11 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3-5, and 7 are rejected under 35 U.S.C. 102(b) as anticipated by Olsen (4,392,655) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sakata (6,206,378).

Olsen discloses a pump having clearance seal assembly comprising a stationary member 3 with an opening, a moving member 4, and a sealing member 9 (or 19). The sealing member and moving member (piston) define an initial continuous and uniform gap 26 that remains continuous and uniform under operating pressures (see col. 4, lines 41-43). The sealing member is considered integrally formed with the stationary member in that it is secured within the stationary member. A static seal 17 (or 27) is formed between the stationary and sealing member. Olsen discloses that the gap 26 is configured to allow fluid to fill it and while maintaining

acceptable leakage. For a system where leakage is not tolerable, it is inherent that the gap would be configured to prevent leakage since leakage would not be "acceptable."

In the alternative, Sakata teaches that forming a clearance seal gap as small as possible prevents leakage (see col. 3, lines 38-44). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to make the gap of Olsen as small as possible to prevent leakage as taught by Sakata.

4. Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsen (in view of Sakata) as applied to claims 1 and 7 above, and further in view of Holland '120.

Olsen does not disclose that the sealing member and moving member are made of ceramic materials. Holland teaches making a clearance seal and piston of ceramic material. Holland teaches that ceramic is not temperature dependent and provides a "virtually dragless sealing action and long wear" (col. 4, line s33-37). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the pump of Olsen by making the seal and piston of ceramic material as taught by Holland to provide an improved assembly that is not affected by temperature and provides a dragless sealing action and long wear.

5. Claims 1, 3-7, and 9-11 rejected under 35 U.S.C. 103(a) as being unpatentable over Kostohris in view of Olsen in view of Sakata.

Kostohris discloses a pump comprising a housing defining a chamber, a piston 14, and a sealing member 34. The sealing member has a fluid tight relationship with the housing. A removable static seal 26 is disposed between the sealing member and housing to maintain a fluid tight relationship. A bearing (either 38 or element between spring and seal in Fig. 2) is disposed

between the piston and casing. Kostohris does not disclose a uniform and continuous gap between the sealing member and piston. Olsen teaches a pump comprising a housing, piston, and sealing member. Olsen teaches forming the sealing member such that it forms a continuous and uniform gap with the piston and maintains a continuous and uniform gap during operating pressures. Olsen teaches that this gap allows fluid in to prevent wear and scoring between the sealing element and piston. While it is considered inherent that the gap could be formed to allow no leakage as an "acceptable leakage rate," Olsen does not specifically state this. Sakata teaches a clearance seal. Sakata teaches making the gap between the seal and shaft as small as possible to prevent leakage. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the seal 34 of Kostohris with the teachings of Olsen and Sakata to provide a sealing assembly that prevents leakage and reduces wear and scoring.

Response to Arguments

6. Applicant's arguments filed 4-15-03 have been fully considered but they are not persuasive and are considered moot in view of the new grounds of rejection.

Clearance seals are well known in the art and are known to comprise of a sealing member forming a gap with another member. These seals are known to limit and even prevent fluid from leaking past. As stated above, Olsen discloses a clearance seal for use in a pump. Olsen discloses that a gap is continuous to "prevent direct contact between the shaft and seal" (col. 1, lines 50-51). Olsen discloses that the gap is "uniform width under both un-pressurized and high-pressure conditions" (see col. 4, lines 40-43). Olsen discloses that the gap is formed with a "predetermined configuration" and maintains an acceptable leakage rate. One of ordinary skill in the art knows that sometimes leakage is not acceptable (i.e. with certain fluids, etc.). Thus, one

of ordinary skill would be able to determine a configuration that prevents leakage. Regardless, Sakata teaches that a clearance seal can be formed with the smallest gap possible in order to prevent leakage.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alison K. Pickard whose telephone number is 703-305-0882. The examiner can normally be reached on M-F (9-6:30), with alternate Friday's off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on 703-308-3179. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9326 for regular communications and 703-8729327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-1113.

Alison K. Pickard
Examiner
Art Unit 3676

AP
June 15, 2003